PATENT

Rev 09/09

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application	:	Pascal Diss et al.
Application No.	:	10/566,067
Filed	:	January 26, 2006
Confirmation No.	:	2032
For	:	PROTECTION AGAINST THE OXIDATION OF COMPOSITE MATERIAL PARTS CONTAINING CARBON AND PARTS THUS PROTECTED
Examiner	:	Austin Murata
Attorney's Docket	:	BDL-494XX

TC Art Unit: 1712

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DECLARATION OF PASCAL DISS UNDER 37 C.F.R. §1.132

Via Electronic Filing
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Pascal Diss, hereby declare that:

1. I am an inventor of the above-referenced U.S. Patent Application Serial No. 10/566,067 (the present application).

2. I hold a doctoral degree in Chemistry from "Haute-Alsace" University. I currently hold the position of R&D Material and Coating Engineer in the Material Development Department at Snecma Propulsion Solide.

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My special fields are protective coatings for composite materials, like:

- C/C rocket nozzles
- C/C aircraft breaking systems
- Ceramic matrix composites aircraft nozzles.

3. I am familiar with the prosecution history of the above-referenced U.S. patent application, including the Final Office Action mailed May 25, 2010 (the Office Action), which includes the rejection of claims 1, 4-5, and 7-8 for alleged anticipation and/or obviousness over de Nora et al. (U.S. 6,228,424), and the Advisory Action of July 28, 2010.

4. In the Office Action and the Advisory Action, the Examiner has taken the position that the de Nora reference describes a method of impregnating a carbon composite material using a solution containing titanium diboride in powder form and a metal phosphate compound. In particular, the Examiner states in the Advisory Action that de Nora's claims 15 and 17 clearly contemplate an impregnation composition containing both a boron compound and a phosphorus compound in the same composition.

5. de Nora's claim 15 states that "the treating liquid contains at least one soluble compound of boron and/or

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phosphorus". (Underlining added). de Nora's claim 17 names several aluminum phosphate compounds for use in claim 15.

6. The titanium diboride of pending claim 1 of the present application is not soluble. It is specifically stated to be "in powder form" in the composition referred to in claim 1. Furthermore, a person of ordinary skill in the use of titanium diboride would immediately understand that titanium diboride is not soluble in water. From my experience as a chemist, I can testify that a person of ordinary skill would have understood that titanium diboride, in powder form, does not qualify as the "soluble compound of boron" in de Nora's claim 15.

7. de Nora's claim 16 refers to "B_2O_3, boric acid, tetraboric acid, or salts of said acids". These compounds are water soluble, unlike titanium diboride, and represent the soluble boron compounds referred to in de Nora's claim 15.

8. de Nora's process is carried out using a heated impregnation composition (see de Nora's claim 1, referring to a "hot treating liquid"). More specifically, de Nora uses a mechanism whereby the compounds that are soluble in the heated composition are cooled by the impregnated body to a point where the compounds precipitate in the pores of the body. For example, in step A) of de Nora's claim 1, the hot treating liquid is heated

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above the temperature of the body, and the treating liquid is cooled by the body to the point where the liquid saturates and the treating agent precipitates.

9. The presently claimed method does not use a heated impregnation composition. Since the composition does not contain any components that are close to their saturation level, there would be no point to heating the solution. As there is no mention of heating the solution in the application, including the Examples, the person of ordinary skill would assume that the method is carried out under ambient conditions.

10. The presently claimed method does not rely upon precipitation of chemical agents within the pores of a solid body. Instead, the mechanism involves the use of already insoluble titanium diboride particles in the specified size range of 0.1 to 200 μm, as well as their oxidation in use to form B_2O_3 and TiO_2, as well as complex Ti-P-O-Me oxides. Even if the skilled person was trying to solve the problem solved by the present invention with knowledge of de Nora, they would not have considered the possibility of adding titanium diboride together with aluminum phosphate under de Nora's heating conditions. That is because with heating the combination of titanium diboride and aluminum

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phosphate would give rise to a reaction that would built up a highly insoluble component.

11. Therefore, the skilled person would not have derived the presently claimed invention, which requires using titanium diboride in powder form in the same composition with a metal phosphate, from the de Nora patent.

12. The observation described in Paragraph 11 above, namely that a composition containing both titanium diboride and aluminum phosphate would be rendered unusable as an impregnation composition if heated, proves that the present application discloses a process where the impregnation step is performed without heating. The ordinary chemist would have immediately recognized this, due to the known properties of titanium diboride and aluminum phosphate when heated.

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I hereby declare that all statements made herein on personal knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 26th day of January, 2011.

By _____
Pascal Diss

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